Claims

1. An analytical test element for blood analyses in particular by a single-use rapid test comprising a substrate body having a microfluidic channel structure for the flow transport of a blood sample from an application site to at least one analytical site, wherein the channel structure comprises a dilution channel which comprises separation means for retaining corpuscular blood components and a sample channel which conveys a blood sample aliquot to be diluted and joins the dilution channel at a mixing site.

2. The analytical test element of claim 1, further comprising a junction which divides the sample flow into parallel flows in the sample channel and the dilution channel.

3. The analytical test element of claim 1, wherein the channel cross-sections of the sample and dilution channel are adjusted relative to one another to set a predetermined dividing ratio for the subflows of the blood sample that pass through.

4. The analytical test element of claim 1, wherein the flow rate through the dilution channel is more than 10-fold higher than the flow rate through the sample channel.

5. The analytical test element of claim 1, wherein the flow rate through the dilution channel is more than 100-fold higher than the flow rate through the sample channel.

6. The analytical test element of the claim 1, wherein a filter element consisting in particular of a glass fibre fleece or a microporous filter matrix or filter membrane is disposed as a separation means in the dilution channel.

7. The analytical test element of claim 1, wherein the dilution channel has a microstructure geometry designed to retain cell components of the blood sample as a separation means.

8. The analytical test element of claim 1, wherein the mixing site further comprises a lysing chamber provided with a lysing agent to haemolyse the diluted blood sample.

9. The analytical test element of claim 1, wherein the channel structure comprises a first analytical channel to determine the total haemoglobin value (Hb) of the blood sample and a second analytical channel for determining a glycohaemoglobin value (HbA1c) of the blood sample.

10. The analytical test element of claim 9, wherein the analytical channels can be loaded with the diluted blood sample via a branch acting as a flow divider downstream of the mixing site.

11. An analytical test element for blood analyses in particular by a single-use rapid test comprising a substrate body having a preferably microfluidic channel structure for the flow transport of a blood sample from an application site to at least one analytical site, wherein the channel structure comprises a first analytical channel to determine the total haemoglobin value (Hb) of the blood sample and a second analytical channel for determining a glycohaemoglobin value (HbA1c) of the blood sample.

12. The analytical test element of claim 11, wherein the first analytical channel further comprises an oxidation chamber containing a stored oxidizing agent to oxidize released haemoglobin.

13. The analytical test element of claim 12, wherein the stored oxidizing agent is ferricyanide.

14. The analytical test element of claim 12, wherein the second analytical channel is designed for the immuno-turbidimetric determination of the glycohaemoglobin concentration.

15. The analytical test element of claim 11, wherein the second analytical channel has a first reaction chamber containing HbA1c antibodies dispensed therein to form soluble antigen-antibody complexes with the glycohaemoglobin from the blood sample.

16. The analytical test element of claim 15, wherein the second analytical channel has a second reaction chamber downstream of the first reaction chamber in which an agglutinator is stored to form insoluble immunocomplexes with excess HbA1c antibodies.

17. The analytical test element of claim 16, wherein end sections of the analytical channel designed as cuvettes for a photometric analysis each form one analytical site.

18. The analytical test element of claim 17, wherein the analytical channels discharge into a collecting reservoir.

19. The analytical test element of claim 18, wherein the channel structure at least in a section thereof has a capillary geometry for an automatic capillary-active flow transport.

20. The analytical test element of claim 19, wherein the channel structure has wall sections for regulating the flow transport that have for example been modified by plasma treatment or coating.

21. The analytical test element of claim 20, wherein the channel structure has valve elements for regulating the flow transport that are formed in particular by hydrophilic or hydrophobic channel sections.

22. The analytical test element of claim 21, wherein the flow transport in the channel structure can be regulated by local application of pressure or centrifugal forces.

23. A method for carrying out blood analyses comprising moving a blood sample in an analytical test element via a microfluidic channel structure from an application site to at least one analytical site, wherein liquid components are obtained from the blood sample and added to a portion of the blood sample to be analysed in order to dilute it.

24. The method of claim 23, wherein a whole blood sample as the starting material is fed in parallel subflows into a dilution channel and a sample channel of the channel structure and the subflow that has been depleted of cell components in the dilution channel is joined with the subflow in the sample channel at a mixing site.